Air Force Agency for Modeling and Simulation

Integrity - Service - Excellence

Air Force M&S Architecture Overview

Mr Sam Fragapane
(407) 208-5765
DSN 970-5765
Sam.Fragapane@afams.af.mil

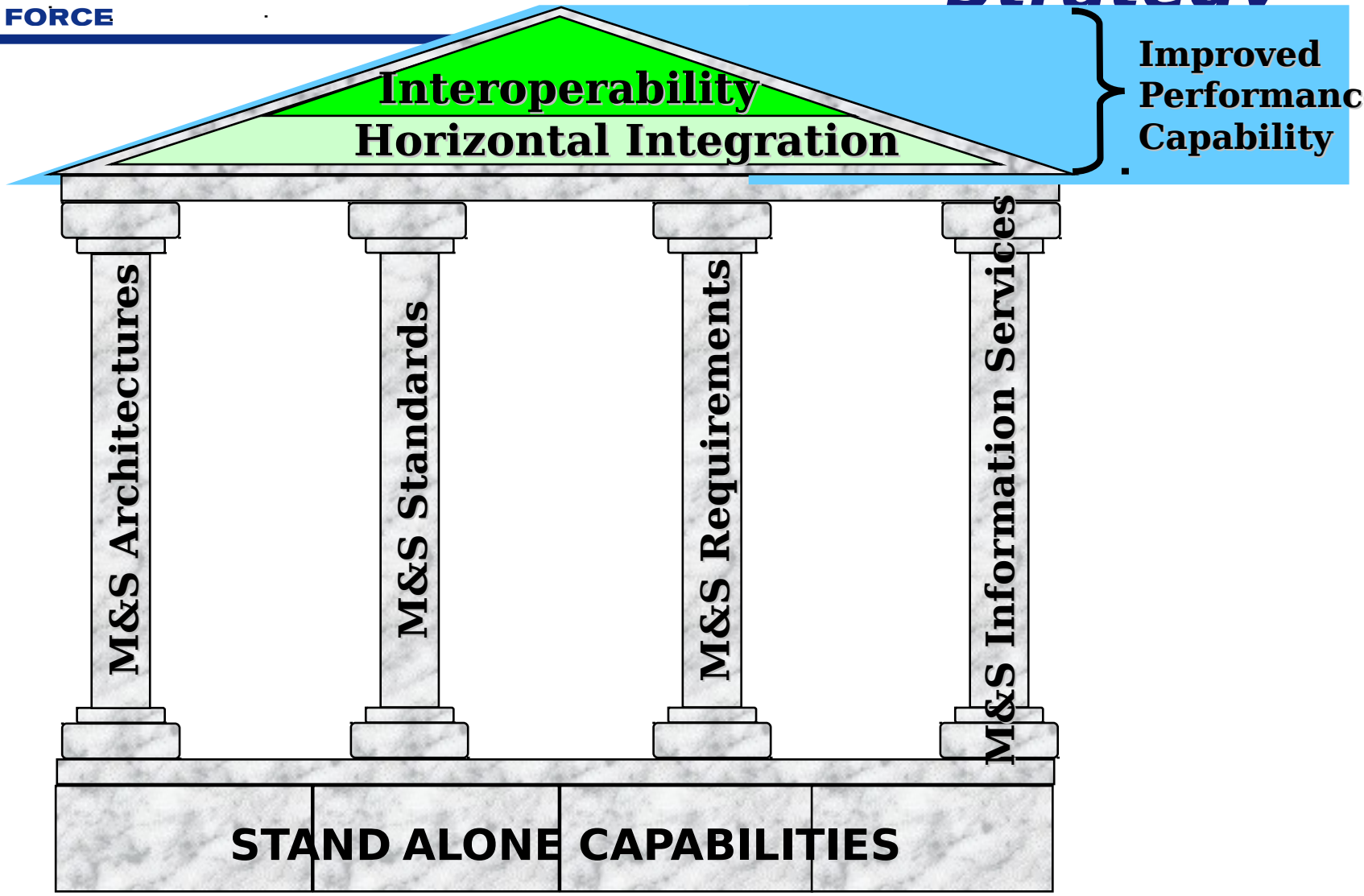
www.afams.af.mil

Overview

- **Why Focus on Architectures**
- **Organization & Structure**
- **DoD Architecture Framework**
- **Architecture Utility**
- **AFAMS Architecture POCs**
- **Public Presence**

Capability Improvement Strategy

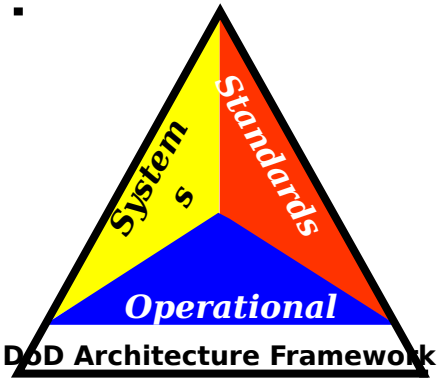
U.S. AIR FORCE



U.S. AIR FORCE

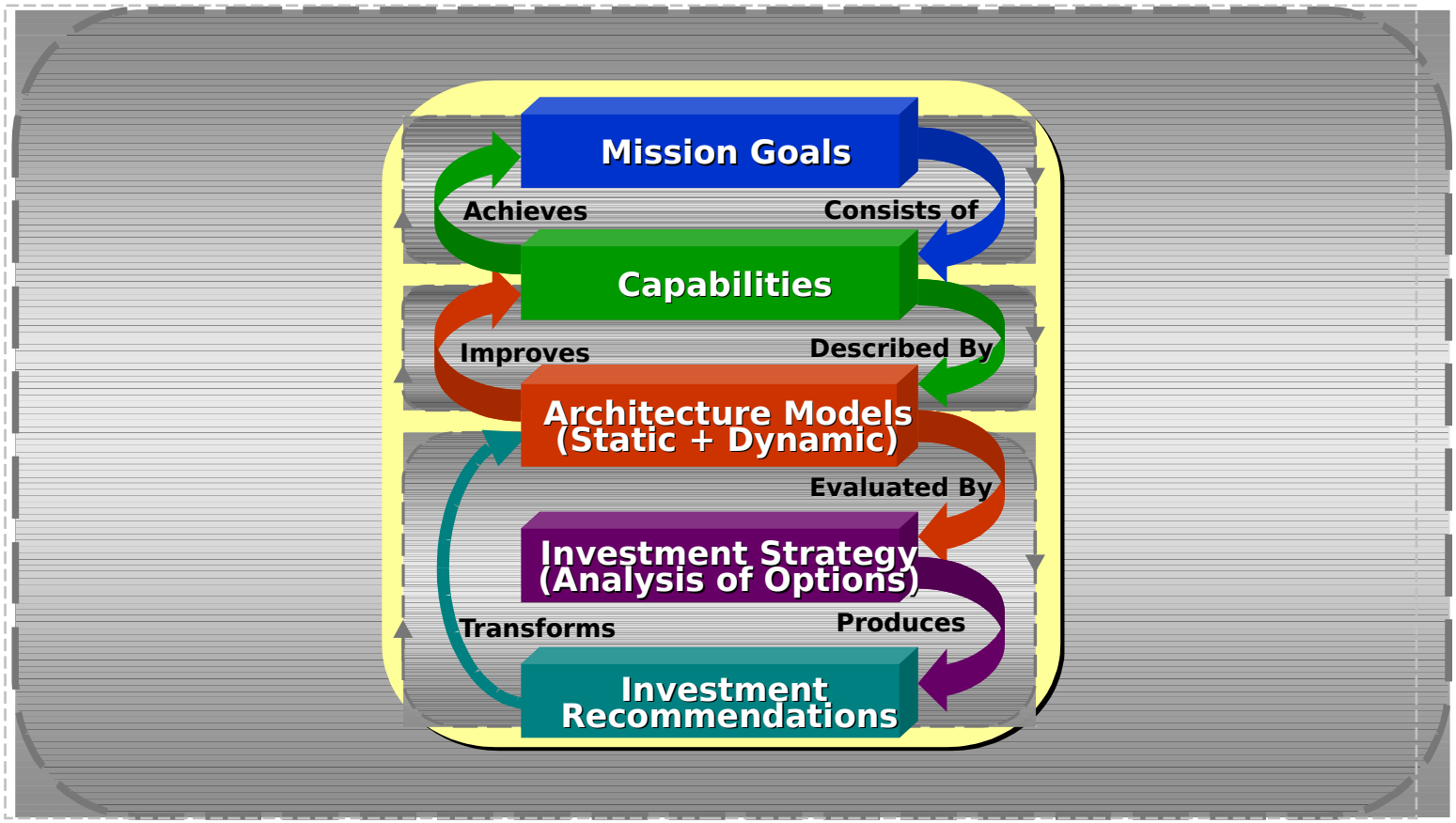
Why Architectures?

- Make smart Investment Decisions
- Efficiency
- Interoperability
- Achieve Mission Goals
- Mandated to do so



Why Architectures?

Mission Goals



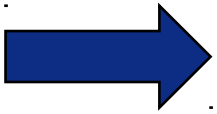
Why Architectures?

Mandates

- **Information Technology Management Reform Act of 1996 (Clinger-Cohen Act)**
  - **Congress concerned with lack of interoperability and chaotic proliferation of IT systems in government**
  - **Act requires all government organizations to develop & use IT architectures as basis for planning and funding all IT systems**
- **Office of Management & Budget Circular A-130**
  - **Requires IT system investment to be consistent with architectures**
- **USAF Policy on Enterprise Architecting (SECAF letter Aug 02)**
  - **Enterprise architecting will be used to guide all info systems investments**
  - ***MAJCOM and HQ functionals responsible for generating operational architectures***
  - Acquisition agents responsible for system and technical architectures
  - **AFI 33-124 Enterprise Information Technology Architectures**
- ***DoD Architecture Framework*, Version 1.0 – Jan 03**
  - **Revised from the C4ISR Architecture Framework, version 2 - 1997**

U.S. AIR FORCE

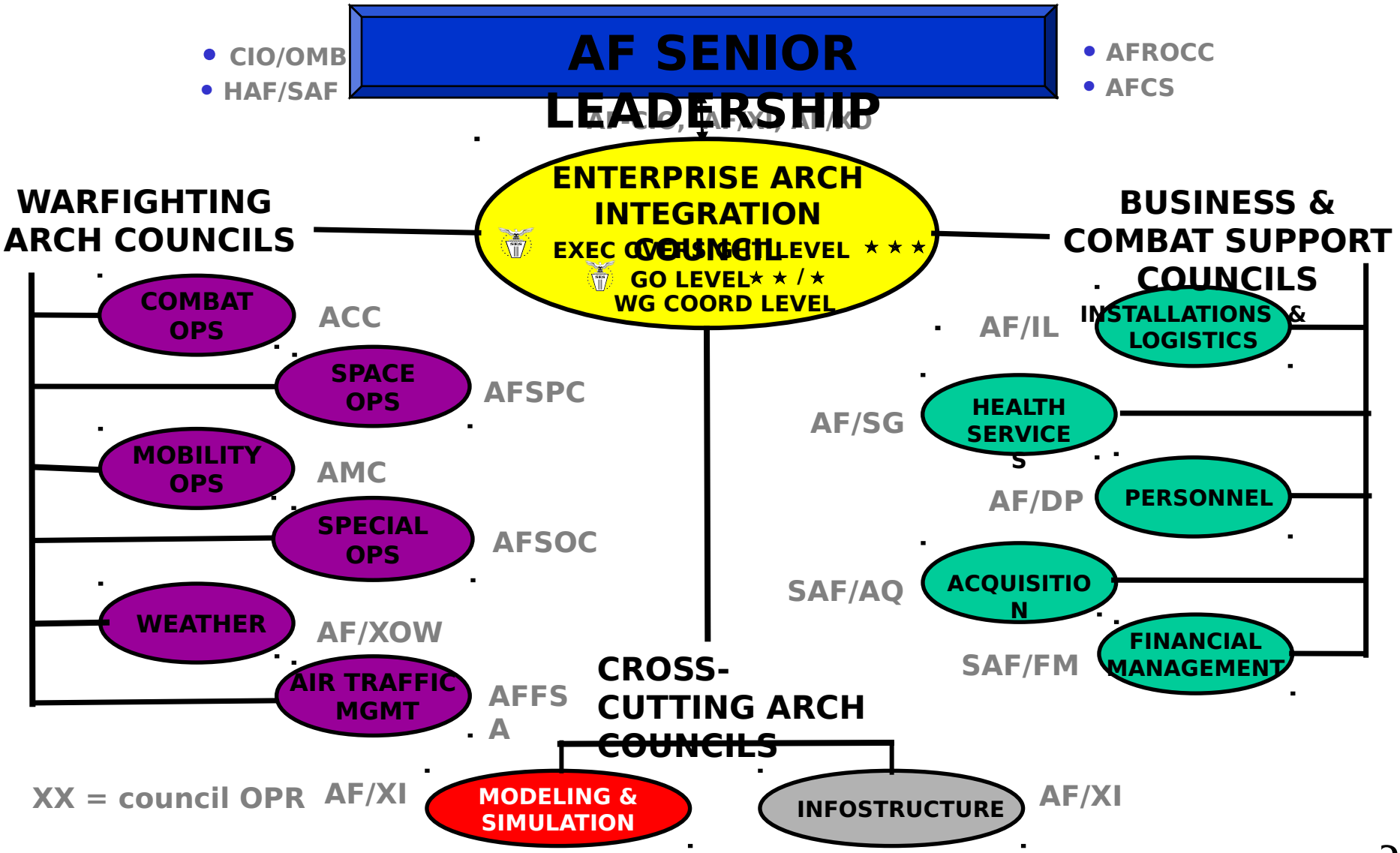
Overview



- Why Focus on Architectures
- Organization & Structure
- DoD Architecture Framework
- Architecture Utility
- AFAMS Architecture POCs
- Public Presence

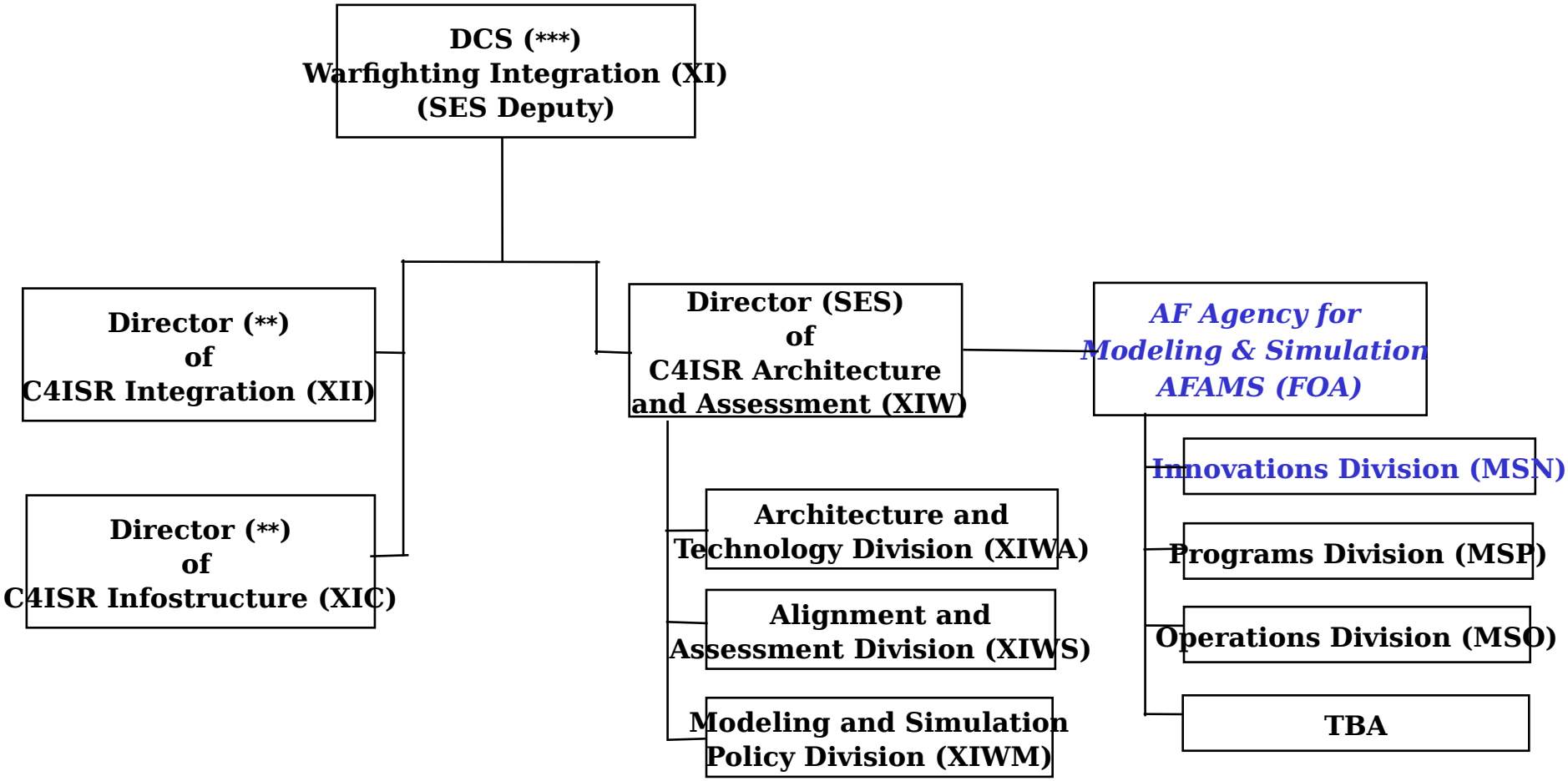
Architecture Council Structure

U.S. AIR FORCE



U.S. AIR FORCE

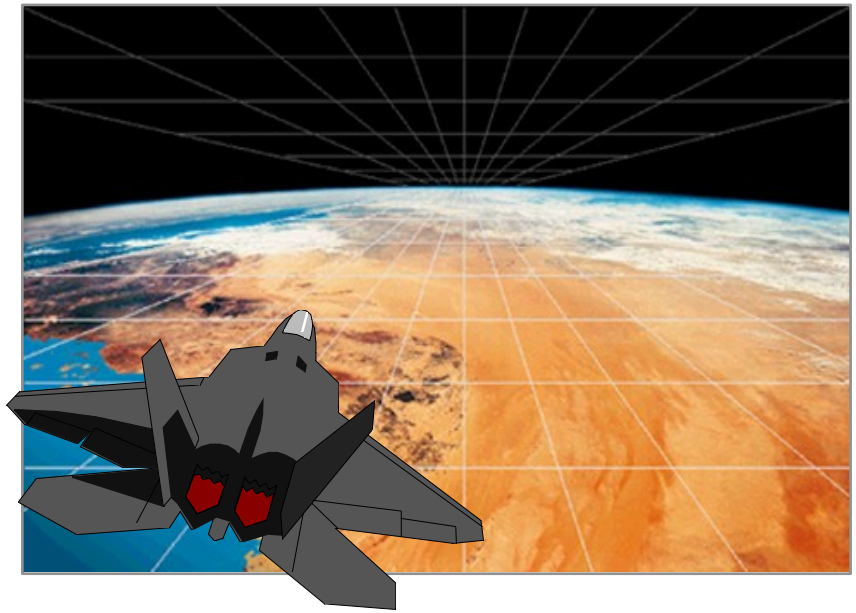
Organization



U.S. AIR FORCE

AFAMS Mission
AF Mission Directive 56

- **Implement AF/Joint/DoD M&S Policy and Standards**
- **Support Corporate AF M&S Planning, Requirements, and Investments**
- **Support Establishment, Transition, and Integration of Major AF M&S Initiatives and Programs**
- **Support AF Decision-Execution**



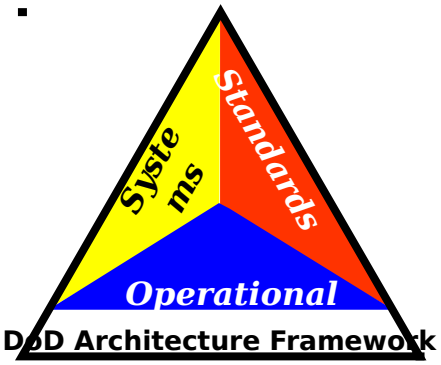
Provides Framework and Flexibility for Growth

U.S. AIR FORCE

Overview

- Why Focus on Architectures
- Organization & Structure
- DoD Architecture Framework
- Architecture Utility
- AFAMS Architecture POCs
- Public Presence

DoD Architecture Framework



DoD Architecture Framework

Operation View

Identifies Warfighter Relationships and Information Needs

Processing and Inter-Nodal Levels of Information Exchange Requirements

Systems Associations To Nodes, Activities, Needlines and Requirements

Processing and Levels of Information Exchange Requirements

Basic Technology Supportability and New Capabilities

Systems View

ates Capabilities and Characteristics To Operational Requirements

Specific Capabilities Identified To Satisfy Information – Exchange Levels and Other Operational Requirements

Technical View

Prescribes Standards and Conventions

Technical Criteria Governing Interoperable Implementation/ Procurement of the Selected System Capabilities

All Views

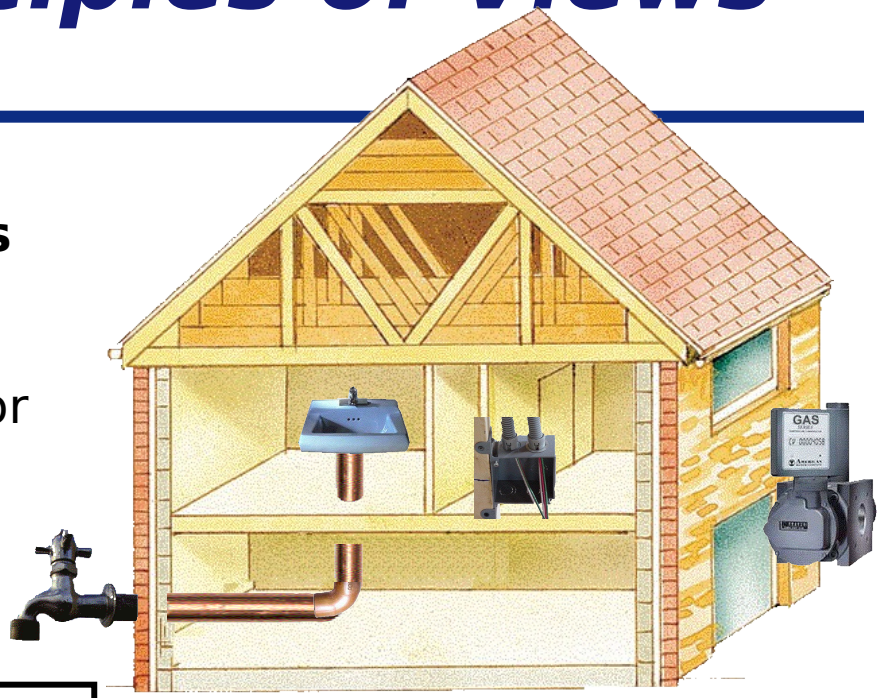
Provides the scope, purpose, intended use(s) and definition of all terms used in the architecture (i.e. the high-level information & foundational underpinnings of an architecture)

U.S. AIR FORCE

Principles of Views

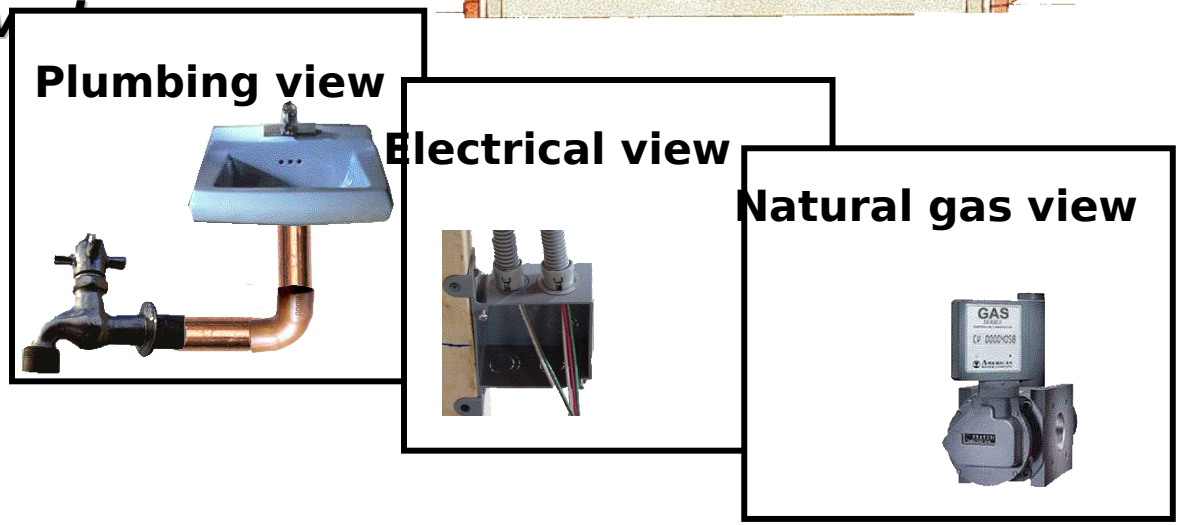
An architecture is documented as a model and is comprised of one or more views. A **view** represents the whole system with focus on one or more critical concerns (i.e., from that viewpoint)

- ***Supports multiple perspectives***
- ***Reduces perceiv… complexity***



Each view presents the whole system from a chosen viewpoint

- ***Complete*** relative to that viewpoint
- ***Consistent*** with respect to other views



DoD Framework Products (Different Information Views)

U.S. AIR FORCE

Rules, guidance, and product descriptions for developing and presenting architectur
ensure a common denominator for understanding, comparing, and integrating archit

OPERATIONAL (OV)

- ***igh-Level Operational Concept G...***
- ***erational Node Connectivity Descrip...***
- ***perational Information Exchange Matrix ****
- **4: Command Relationships Chart**
- ***5: Activity Model ****
- **6a: Operational Rules Model**
- **Operational State Transition Descri...**
- **t: Operational Event/Trace Descripti...**
- **7: Logical Data Model**

SYSTEMS (SV)

- ***1: System Interface Description***
- **2: Systems Communications Desc.**
- **3: Systems Matrix**
- **4: Systems Functionality Descriptio**
- **5: Operational Activity to System Function Traceability Matrix**
- **6: Sys Information Exchange Matrix**
- **7: Sys Performance Parameters Matrix**
- **8: System Evolution Description**
- **9: System Technology Forecast**
- **10a: Systems Rules Model**
- **10b: System State Transition Description**
- **10c: Systems Event/Trace Description**
- **11: Physical Data Model**

TECHNICAL (TV)

- ***1: Technical Architecture Profile ****
- **2: Standards Technology Forecast**

Static Models

Dynamic Models

Spreadsheets

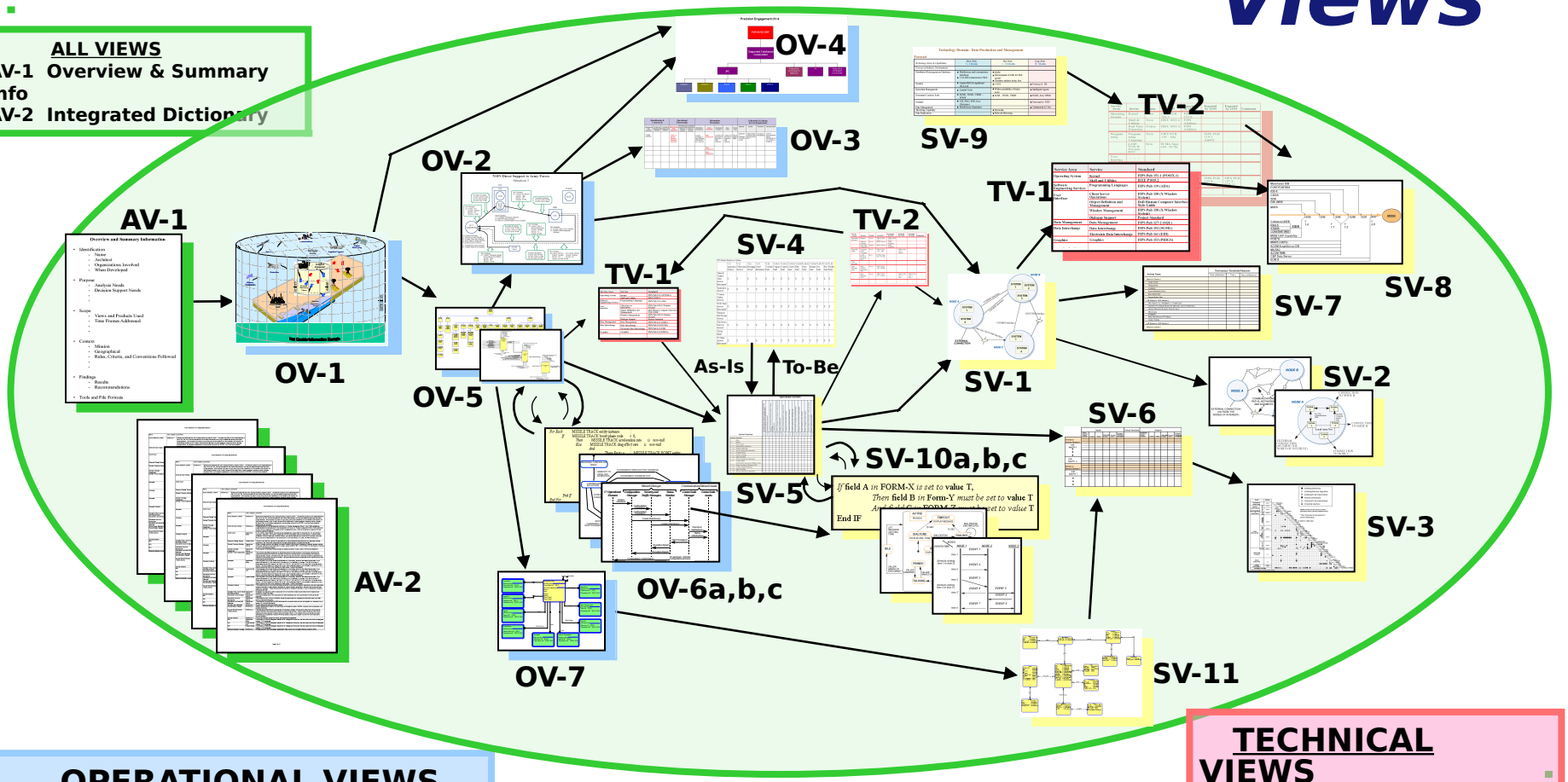
*** Mandatory**

CADM: Core Architecture Data Model

U.S. AIR FORCE

Integrated Architecture Views

ALL VIEWS
AV-1 Overview & Summary Info
AV-2 Integrated Dictionary



OPERATIONAL VIEWS

OV-1 High-level Operational Concept Graphic
OV-2 Oper Node Connectivity Description
OV-3 Oper Information Exchange Matrix
OV-4 Organizational Relationships Chart
OV-5 Activity Model
OV-6a Operational Rules Model
OV-6b Operational State Transition Matrix

SYSTEMS VIEWS

SV-1 Systems Interface Description
SV-2 Systems Communications Description
SV-3 Systems 2 Matrix
SV-4 Systems Functionality Description
SV-5 Oper Activity to Sys Function Trace Matrix
SV-6 Systems Data Exchange Matrix
SV-7 Systems Performance Parameters Matrix
SV-8 Systems Evolution Matrix
SV-9 Systems Technology Forecast
SV-10a Systems Rules Model
SV-10b System State Transition Matrix
SV-10c Systems Event/Trace Description
SV-11 Physical Data Model

TECHNICAL VIEWS

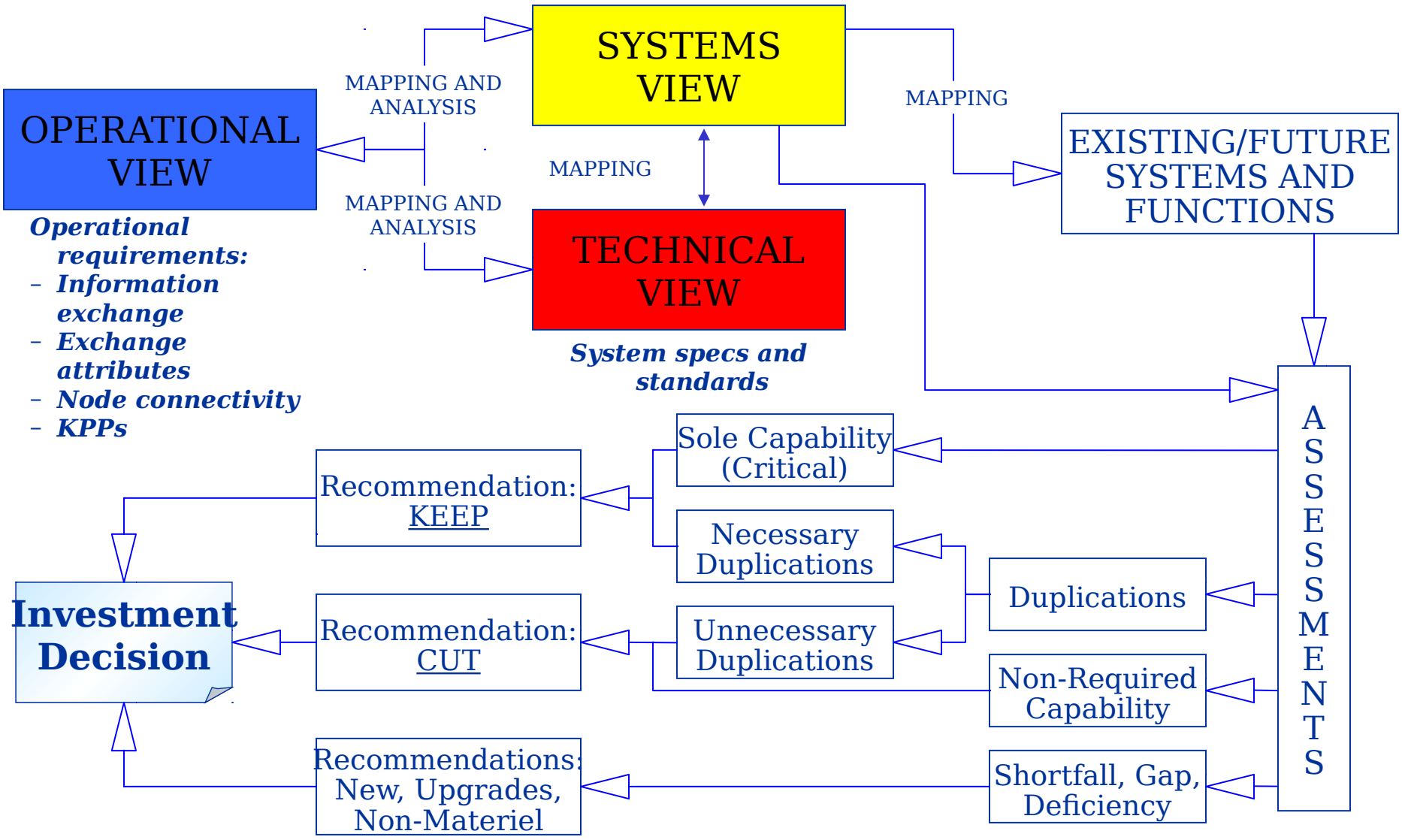
TV-1 Technical Architecture Profile
TV-2 Standards Technical Forecast

U.S. AIR FORCE

Overview

- Why Focus on Architectures
- Organization & Structure
- DoD Architecture Framework
- Architecture Utility
- AFAMS Architecture POCs
- Public Presence

Architecture Utility



U.S. AIR FORCE

Overview

- Why Focus on Architectures
- Organization & Structure
- DoD Architecture Framework
- Architecture Utility
- AFAMS Architecture POCs
- Public Presence

Program Leadership

U.S. AIR FORCE

M&S Enterprise Architecture (Operational & System Views)

Main POC: Mr. Russell Hutt

AFAMS/MSN

Russell.Hutt@afams.af.mil

DSN 970-5718

Alt POC: Lt. Andre Johnson

AFAMS/MSN

Andre.Johnson@afams.af.mil

DSN 970-5784

CRRB

Main POC: Maj David Bukovey

AFAMS/MSN

David.Bukovey@afams.af.mil

DSN 970-5741

Alt POC: Larry Simmons

AFAMS/MSN

Larry.Simmons@afams.af.mil

DSN 970-5750

Program Leadership

U.S. AIR FORCE

AV-1 & AV-2

(Architecture Registration / Terms & Definition)

Mr Laurie Talbot

AFAMS/MSN

laurie.talbot@afams.af.mil

DSN 970-5753

TV-1 & TV-2

(Technical Standards Views)

Main POC: Mr. William Oates

AFAMS/MSN

William.Oates@afams.af.mil

DSN 970-5739

Alt POC: Mr Don Johnson

AFAMS/MSN

Don.Johnson@afams.af.mil

DSN 970-5786

U.S. AIR FORCE

Overview

- Why Focus on Architectures
- Organization & Structure
- DoD Architecture Framework
- Architecture Utility
- AFAMS Architecture POCs
- Public Presence

U.S. AIR FORCE

AF M&S Architecture Public Presence

- **More information available at Websites**
  - **AF/CIO: www.cio.hq.af.mil/private/index.html**
  - **AFCA: www.afca.scott.af.mil/architectures/**

- **Methods for documenting architecture data/products**
  - **Register M&S architectures http://afmsrr.afams.af.mil/register.cfm**